CLAIMS

What is claimed is:

5   1.   A method for rendering, comprising:

establishing rendering resources at a user site;

transmitting a rendering request from the user site to a rendering service, the user site being in communication with the rendering service over a network, the rendering request comprising identifiers of rendering resources currently available at the user site

10   required for a performing a rendering task;

maintaining at the rendering service a resource pool comprising rendering resources from at least one previous rendering request from the user site;

comparing the rendering resources in the resource pool with the identifiers of rendering resources currently available at the user site; and

15   uploading a given required resource from the user site to the rendering service only if there is not a match between the resource pool and the user site for that required resource.

2.   The method of claim 1, wherein the user site and the rendering service are located

20   at different physical sites, and wherein the network comprises the Internet.

3.   The method of claim 1, wherein the user site and the rendering service are co-located at the same physical site, and wherein the network comprises a local area network.

25   4.   The method of claim 1, the rendering resources being uploaded to the rendering service in a raw format, the method further comprising:

at the rendering service, generating the raw rendering resources to produce generated rendering resources; and

providing the generated rendering resources to a rendering engine.

5.   The method of claim 4, the rendering resources comprising scene description files, further comprising the step of manipulating a modeling application such that said scene description files comprise at least one static scene description file and at least one dynamic

5 scene description file, whereby a statistical upload volume of scene description data is reduced.

6.   The method of claim 4, further comprising:

storing generated rendering resources corresponding to previous rendering requests

10 in the resource pool; and

subsequent to said comparison step, generating a given raw resource into a generated rendering resource only if that raw resource required uploading for the rendering task.

15 7.   The method of claim 4, further comprising:

transmitting a session control file comprising the identities of each raw rendering resource file required for the rendering task;

transmitting at least one resource generation control file comprising associations among the raw rendering resource files and a plurality of generated rendering resource files

20 corresponding thereto; and

for each raw rendering resource file, performing the steps of (i) forward-mapping that raw rendering resource file onto a set V of dependent generated rendering resource files using information derived from the resource generation control files, (ii) reverse-mapping each member of the set V onto a set W of raw rendering resource files using

25 information derived from the resource generation control files; and (iii) marking that generated rendered resource file for generation if (a) it does not exist in the resource pool

or (b) any of the set W of raw rendering resource files required uploading for the rendering task.

8.   A network based rendering method, comprising:

establishing rendering resources at a user site;

5   transmitting a rendering request from the user site to a rendering service, the user site being in communication with the rendering service over a network, the rendering request comprising identifiers of rendering resources currently available at the user site required for a performing a rendering task;

maintaining at the rendering service a resource pool comprising rendering resources 10 from at least one previous rendering request from the user site;

comparing the rendering resources in the resource pool with the identifiers of rendering resources currently available at the user site; and

uploading a given required resource from the user site to the rendering service only if there is not a match between the resource pool and the user site for that required 15 resource;

wherein said rendering resources include scene description files;

and wherein said step of establishing rendering resources comprises the step of .manipulating a modeling application such that said scene description files comprise at least one static scene description file and at least one dynamic scene description file, whereby a 20 statistical upload volume of scene description data is reduced in that the static scene description files will statistically be required for a lesser number of frames of the rendering task than the dynamic scene description files.

9.   The method of claim 8, wherein the user site and the rendering service are located 25 at different physical sites, and wherein the network comprises the Internet.

10.   The method of claim 8, wherein the user site and the rendering service are co-located at the same physical site, and wherein the network comprises a local area network.

11.   The method of claim 8, the rendering resources further comprising shader files, texture files, or procedural files, the rendering resources being uploaded to the rendering service in a raw format, the method further comprising:

5   at the rendering service, generating the raw rendering resources to produce generated rendering resources; and

        providing the generated rendering resources to a rendering engine.

12.   The method of claim 11, further comprising:

10   storing generated rendering resources corresponding to previous sessions in the resource pool; and

        subsequent to said comparison step, generating a given raw resource into a generated rendering resource only if that raw resource required uploading for the rendering task.

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13.   The method of claim 11, further comprising:

        transmitting a session control file comprising the identities of each raw rendering resource file required for the rendering task;

        transmitting at least one resource generation control file comprising associations

20 among the raw rendering resource files and a plurality of generated rendering resource files corresponding thereto; and

        for each raw rendering resource file, performing the steps of (i) forward-mapping that raw rendering resource file onto a set V of dependent generated rendering resource files using information derived from the resource generation control files, (ii) reverse-

25 mapping each member of the set V onto a set W of raw rendering resource files using information derived from the resource generation control files; and (iii) marking that generated rendered resource file for generation if (a) it does not exist in the resource pool

or (b) any of the set W of raw rendering resource files required uploading for the rendering task.

14. A rendering method, comprising:

5   identifying rendering resources at a user site;

transmitting a rendering request from the user site to a rendering service, the user site being in communication with the rendering service over a network, the rendering request comprising identifiers of rendering resources currently available at the user site required for a performing a rendering task;

10   maintaining at the rendering service a resource pool comprising rendering resources from at least one previous rendering request from the user site;

comparing the rendering resources in the resource pool with the identifiers of rendering resources currently available at the user site;

storing generated rendering resources corresponding to previous rendering requests

15 in the resource pool; and

determining whether to generate a given raw resource into a generated rendering resource based on a result of the comparing step.

15. A rendering method according to claim 14, further comprising uploading a given

20 required resource from the user site to the rendering service only if the comparing step determines there is not a match between the resource pool and the user site for that required resource.

16. A rendering method according to claim 15, the rendering resources being uploaded

25 to the rendering service in a raw format, the method further comprising:

at the rendering service, generating the raw rendering resources to produce generated rendering resources; and

providing the generated rendering resources to a rendering engine.

17.   A method according to claim 14, the rendering resources comprising scene description files, further comprising the step of manipulating a modeling application such that said scene description files comprise at least one static scene description file and at

5   least one dynamic scene description file.

18.   A method for rendering, comprising:

establishing rendering resources at a user site;

transmitting a rendering request from the user site to a rendering service, the user

10   site being in communication with the rendering service over a network, the rendering request comprising identifiers of rendering resources currently available at the user site required for a performing a rendering task;

maintaining at the rendering service a resource pool comprising rendering resources from at least one previous rendering request from the user site;

15   comparing the rendering resources in the resource pool with the identifiers of rendering resources currently available at the user site;

uploading a given required resource from the user site to the rendering service only if there is not a match between the resource pool and the user site for that required resource, the rendering resources are uploaded to the rendering service in a raw format;

20   at the rendering service, generating the raw rendering resources to produce generated rendering resources;

providing the generated rendering resources to a rendering engine;

storing generated rendering resources corresponding to previous rendering requests in the resource pool;

25   subsequent to said comparison step, generating a given raw resource into a generated rendering resource only if that raw resource required uploading for the rendering task.

19.   A computer program product for use in carrying out a network based rendering service, comprising:

computer code for establishing rendering resources at a user site;

computer code for transmitting a rendering request from the user site to a rendering

5   service, the user site being in communication with the rendering service over a network, the rendering request comprising identifiers of rendering resources currently available at the user site required for a performing a rendering task;

computer code for maintaining at the rendering service a resource pool comprising rendering resources from at least one previous rendering request from the user site;

10   computer code for comparing the rendering resources in the resource pool with the identifiers of rendering resources currently available at the user site; and

computer code for uploading a given required resource from the user site to the rendering service only if there is not a match between the resource pool and the user site for that required resource.

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20.   The computer program product of claim 19, the rendering resources being uploaded to the rendering service in a raw format, the computer program product further comprising:

computer code at the rendering service for generating the raw rendering resources to produce generated rendering resources; and

20   computer code for providing the generated rendering resources to a rendering engine.

21.   The computer program product of 20, the rendering resources comprising scene description files, the computer program product further comprising computer code for

25   producing the scene description files, wherein said computer code for producing the scene description files is capable of being manipulated such that the scene description files comprise at least one static scene description file and at least one dynamic scene description file, whereby a statistical upload volume of scene description data may be

reduced in that the static scene description files will statistically be required for a lesser number of frames of the rendering task than the dynamic scene description files.

22.   The computer program product of claim 20, further comprising:

5   computer code for storing generated rendering resources corresponding to previous sessions in the resource pool; and

computer code for, subsequent to said comparison step, generating a given raw resource into a generated rendering resource only if that raw resource required uploading for the rendering task.

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23.   The computer program product of claim 20, further comprising:

computer code for transmitting a session control file comprising the identities of each raw rendering resource file required for the rendering task;

computer code for transmitting at least one resource generation control file

15 comprising associations among the raw rendering resource files and a plurality of generated rendering resource files corresponding thereto; and

computer code for performing the steps of, for each raw rendering resource file, (i) forward-mapping that raw rendering resource file onto a set V of dependent generated rendering resource files using information derived from the resource generation control

20 files, (ii) reverse-mapping each member of the set V onto a set W of raw rendering resource files using information derived from the resource generation control files; and (iii) marking that generated rendered resource file for generation if (a) it does not exist in the resource pool or (b) any of the set W of raw rendering resource files required uploading for the rendering task.

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24.   The computer program product of claim 19, wherein the user site and the rendering service are located at different physical sites, and wherein the network comprises the Internet.

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25.   The computer program product of claim 19, wherein the user site and the rendering service are co-located at the same physical site, and wherein the network comprises a local area network.